

Morphing Flight Control Surface for Advanced Flight Performance, Phase I

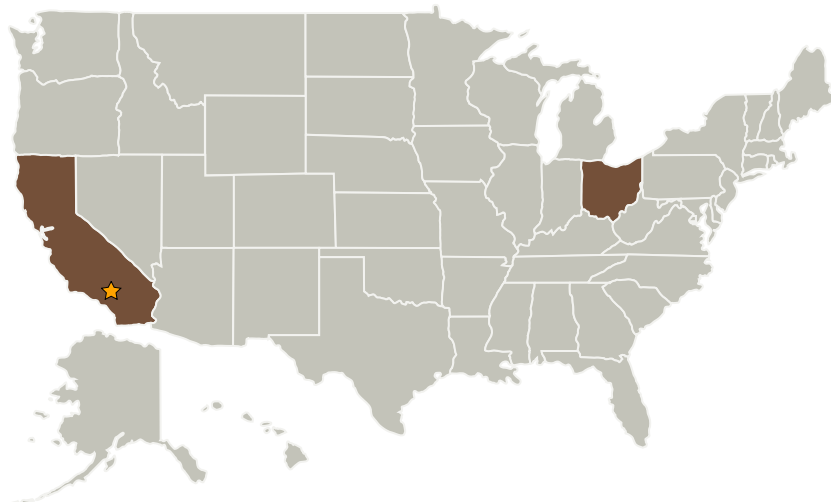
Completed Technology Project (2005 - 2005)



Project Introduction

In this SBIR project, a new Morphing Flight Control Surface (MFCS) will be developed. The distinction of the research effort is that the SenAnTech team will employ our innovative High Deformable Mechanism (HDM) to develop MFCS. The utilization of energy is the important concern to accomplish this research goal. Energy is chosen because it provides a mechanism where all concepts can be represented and judged in a consistent fashion. Ultimately, this research will provide a novel methodology for predicting the type, placement, and operation of actuators and sensors for aerial vehicles that incorporate large-scale shape changing for the improved flight performances. The MFCS will consist of hardware, software and processing units. The actuators, sensors, wiring, signal conditioning and, associated electronics will be selected as required. Modern systems technology like controllability and observability of the system will be examined for the optimal actuator and sensor placements. Also, shaped or digitized electrode technology will be applied to measure the spatial energy distribution of the deformable wing.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Armstrong Flight Research Center (AFRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Armstrong Flight Research Center(AFRC)	Lead Organization	NASA Center	Edwards, California
SenAnTech, Inc.	Supporting Organization	Industry	Columbus, Ohio

Primary U.S. Work Locations

California	Ohio
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Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Seung-keon Kwak

Technology Areas

Primary:

- TX15 Flight Vehicle Systems
 - └ TX15.2 Flight Mechanics
 - └ TX15.2.3 Flight Mechanics Testing and Flight Operations